

August 7, 2014

Ms. Nancy Rumrill  
U.S. Environmental Protection Agency  
Region 9, Ground Water Office, WTR-9  
75 Hawthorne Street  
San Francisco, California 94105-3901

**Re: Response to Request for Information dated July 11, 2014  
Class III Underground Injection Control (UIC) Well Permit Application  
Curis Resources (Arizona) Inc.**

Dear Ms. Rumrill:

Florence Copper, Inc. (Florence Copper) is pleased to submit the following in response to Mr. David Albright's July 11, 2014 letter to Mr. David Copeland, and to the Request for Information (RFI) included as an attachment to Mr. Albright's letter. Florence Copper's responses to each of the comments identified in the RFI are provided below. Each comment is listed in italics and is followed by our response.

The complete updated UIC Permit application included as Appendix 1 of this response is submitted in replacement of our May 13, 2014 submittal, in its entirety. The complete updated application submitted herewith includes changes made throughout the Application in response to the RFI dated July 11, 2014, and incorporates all changes made in response to earlier RFIs.

We believe the following is responsive to the July 11, 2014 RFI and we are available to answer any questions you might have.

Thank you for your assistance.

Sincerely,  
Florence Copper Inc.



Daniel Johnson  
Vice President – General Manager

cc: Richard Mendolia, Arizona Department of Environmental Quality  
David Albright, U.S. Environmental Protection Agency

## **ATTACHMENT A, AREA OF REVIEW**

### ***Comment 1***

*Attachments 14A, 14B, and 14C of the Temporary Aquifer Protection Permit (APP) application dated March 1, 2012 were added as requested to the UIC permit application in Exhibits A-1, A-2, and A-3, respectively. However, discussion of the basis for the groundwater flow model with reference to the content of those exhibits was not provided in the discussion portion of Attachment A. Please add a summary discussion of the basis for the groundwater flow model with reference to the content of Exhibits A-1, A-2, and A-3.*

### **Response to Comment 1**

The requested description has been added to Section A-1 of Attachment A to provide the basis for the groundwater flow model described in Exhibit A-1, and the hydrologic data and information included in Exhibits A-2 and A-3.

## **ATTACHMENT K, INJECTION PROCEDURES**

### ***Comment 2***

*In the FC response to Comment 11 of EPA's March 13 RFI, a line for Injection Well Annular Space and a pressure transducer with descriptions of conditions, possible cause, response, and follow-up action were added to Table 1 of the Operations Plan in Exhibit K-2. The descriptions do not appear to apply to injection wells wherein a packer is installed above the well screen as depicted in Figure 2 of this Exhibit. Pressure anomalies in the tubing/casing annulus could be indicative of mechanical integrity failure. Please add to Table 1 descriptions of conditions, possible cause, response, and follow-up action applicable to that well configuration where the condition may be either a packer, tubing, casing, and/or other equipment failure.*

### **Response to Comment 2**

The description of contingency actions in Table 1 related to Injection Well Annular Space pressure monitoring has been modified to reflect the failure of injection tubing as a potential injection failure mode; packer failure is already listed as a potential failure mode. The revised description of contingency actions applies directly to injection wells in which a packer is installed above the middle or lower screened injection interval as depicted in Figure 2 of Exhibit K-2. As described below, Florence Copper does not plan to install a packer above all three of the planned screened intervals to isolate the blank casing above the uppermost screened interval.

Each of the proposed wells are planned to have three screened intervals separated by blank casing that will allow a packer to be seated above the middle or lower planned injection intervals. Alternately, no packer may be used during injection depending on formation response under injection conditions. Potential failure modes that might result in a tubing/casing annulus pressure anomaly include packer bypass, formation bypass where a packer is set in one of the two lower blank casing sections separating the lower screened intervals, and injection tubing failure. Because there will always be open screen above and below the packer, a drop in fluid pressure is interpreted to be a change in the formation response to injection rather than a casing failure under pressure.

Packers are planned only for the isolation of the lowermost two injection intervals. If injection is planned into the uppermost screened interval, the lower two screened intervals will also be exposed to injection pressure, resulting in injection into all three intervals at once with no need to isolate the upper well casing from the injection pressure. Each well has been designed to accommodate the planned injection pressures; consequently there is no need to set a packer above the uppermost screened interval to isolate the upper well casing from that injection pressure.

Fluid pressure monitoring in the casing/tubing annulus where a packer is used to isolate the middle and lower screened intervals will be conducted to observe the upper formation response to injection in the lower two intervals. Where no packer is used, the fluid pressure in the well casing/tubing annulus will be monitored to determine the fluid level in the well and the corresponding injection pressure when the fluid level is below the elevation of the well head.

## **ATTACHMENT L, WELL CONSTRUCTION PROCEDURES**

### ***Comment 3***

*The proposed long string casing construction design of the seven supplemental monitoring wells is described as 4-inch steel casing in Section L.2.6 on Page 5 and Figure M-5, Typical Supplemental Monitoring Well Construction Diagram. That is inconsistent with Figures 18-2, POC Well Design M55-UBF and 18-3, POC Well Design M56-LBF, in Exhibit P-2 which depict the long string casing material as 5-inch PVC. The POC terminology applied to those two wells is somewhat confusing as well, since EPA identifies them as supplemental monitoring wells and the application includes references to them as such in the text in Section M.2 of Attachment M, Well Construction Details. Also, there are inconsistencies in the depiction of the size 10-inch versus 14-inch diameter of steel conductor casing for the figures of the typical supplemental monitoring well construction and the proposed monitoring well designs in Attachment M. Please clarify and edit the application here and wherever necessary to achieve consistency in well construction design and terminology, including Figures 18-2 and 18-3 in Attachment P, Monitoring Program.*

### **Response to Comment 3**

Figures 18-2 and 18-3 were originally prepared in 2012 in response to a request for information received from USEPA. The figures were included with Exhibits M-1 and P-2 of our May 2014 submittal at the request of USEPA. The figures have been updated to reflect the well design currently proposed for Class III supplemental monitoring wells M-55 and M-56, including the proposed use of steel casing rather than PVC casing. The revised figures are included in Exhibits M-1 and P-2.

## **ATTACHMENT M, WELL CONSTRUCTION DETAILS**

### ***Comment 4***

*M.2, Well Design: Please edit the first sentence to change M-4 to M-5. Refer to comments regarding Attachment L applicable to the inconsistency in well identification terminology and casing design with regard to Figure M-5 and the seven figures in Exhibit M-1. Please clarify the well label terminology and the use of PVC instead of steel casing in Figures 18-2 and 18-3 as discussed in the comment above.*

### **Response to Comment 4**

The first sentence of Section M.2 has been edited to replace the text "M-4" with the text "M-5". Figures 18-2 and 18-3 have been updated to reflect the well design currently proposed for the Class III supplemental monitoring wells M-55 and M-56, including the proposed use of steel casing rather than PVC casing. The revised figures are included in Exhibits M-1 and P-2.

**Comment 5**

*Regarding the FC response to Comment 15 of EPA's March 13 RFI, Exhibit 9A was added to Attachment M, but the list of four drawings and Table 9A-1 listed in the Table of Contents were omitted. Those may be duplicative of Figures M-1 through M-4 and Exhibit K-2, but should be either included in Exhibit 9A or referenced to the figures in Attachment M and the Operations Plan in Exhibit K-2 of Attachment K. The CD containing Exhibit 9A was omitted, but was provided in the September 2012 response document. Please add the latest version of Exhibit 9A on a CD to the updated permit application.*

Response to Comment 5

Drawings 9A-1 through 9A-4 and Table 1 from Exhibit K-2 have been updated to reflect the current proposed design and have been added to Exhibit 9A which is included in Attachment M. The complete Exhibit is provided on a CD with the updated permit application.

**ATTACHMENT N, CHANGES IN INJECTED FLUID**

**Comment 6**

*Section N-2, Background: The text states that core holes were drilled in 2011 at the PTF well field site. Please identify those core holes and provide the drilling and coring records if not included in Attachment C of the application. Clarify if these core holes are included on the two maps in Attachment B and Table C-1 of core holes and wells located within the area of review (AOR). If not, please add the core holes to the table and the maps. Also, please state the current status of those core holes, whether abandoned or still open.*

Response to Comment 6

In July 2011, FCI drilled two core holes (CMP11-05 and CMP11-06) at the PTF well field site for the purpose of collecting core samples for metallurgical analysis. Once the samples were collected, the core holes were plugged and abandoned. The drill records and abandonment records have been added to Exhibit C-1, and the information regarding the core holes has been added to Table C-1 of Attachment C. The location of the core holes has been added to Figure A-9, and two maps included in Exhibit B-1 numbered RTC (E) 18-1 and 8-1. The core holes were plugged and abandoned with cement.

**Comment 7**

*Figures 9-1 and 9-2 were provided as requested in Comment 17 of EPA's March 13 RFI letter. However, the map scale depicted in the map insert of the PTF well field of those figures indicates the well field scale size to be 300 by 300 feet with the observation wells instead of the 200 by 200 feet described as the PTF well field in parts of the application. Please clarify or modify the scale to the correct magnitude for the PTF well field.*

Response to Comment 7

The 200-foot by 200-foot area at the core of the PTF well field includes all of the injection and recovery wells and was used as a basis for the extent of the AOR and the area where model inputs were entered into the groundwater flow model. By contrast, the complete PTF well field, including the observation wells, occupies an area that is approximately 300 feet by 300 feet.

In Attachment A, Section A.1, the AOR was described as a 200-foot by 200-foot area with an additional 500-foot circumscribing area. The text in Section A.1 has been modified to reflect the 300-foot by 300-foot dimensions of the PTF well field including the observation wells.

In Attachment N, Section N.3.1, the configuration of the groundwater model is described to include four injection wells and nine recovery wells located within a 200-foot by 200-foot area. The text in Section N.3.1 accurately describes the injection and recovery wells as being located within a 200-foot by 200-foot area, excluding the observation wells, for the purpose of describing the groundwater flow model. As such, the text in Section N.3.1 has not been changed.

The cross sections provided in Figures 9-1 and 9-2 depict north-south and east-west transects through the injection and recovery wells that cross the square area diagonally from corner to corner. In this dimension, the core of the PTF well field measures 280 feet across. Consequently, the scale shown in the inset map of Figures 9-1 and 9-2 correctly show the dimensions of the well field. The scale for the cross sections in Figures 9-1 and 9-2 have been corrected. Revised Figures 9-1 and 9-2 that include the correct scales for both the inset maps and the cross section are included in Attachment N.

#### **Comment 8**

*Section N.3.1, Groundwater Model: The discussion on page 5 indicates changes to the length of the injection interval from 360 to 700 feet and a reduction in the hydrostatic pressure increase above ambient pressure to 8.2 psi, which equals 19 feet of head in unconfined conditions. Please clarify and discuss the basis for this change. Also, please clarify that the oxide zone and LBFU are unconfined at the contact between those zones.*

#### **Response to Comment 8**

The purpose for this change was to replace language and information that pertained to average formation conditions with language and information specific to the PTF facility at the request of USEPA. In comment 16 of the RFI dated March 13, 2014, USEPA requested that language describing hydrostatic pressure effects and head differentials be updated based on the latest model results. The latest model results were generated for the planned PTF, rather than the site-wide proposed commercial operations described in the earlier application to transfer and amend UIC Permit No. AZ396000001. The model runs from which the information was extracted are described in Attachment N.

The average injection interval and pressure calculated for the commercial operations was replaced with site-specific injection interval and pressure information derived from model simulations run specifically for the PTF. The site-wide average oxide zone thickness for commercial operations is approximately 400 feet, resulting in an injection interval of 360 feet when the 40-foot exclusion zone is taken into consideration. The thickness of the oxide is greater at the location of the planned PTF (approximately 750 feet) than the site-wide average calculated for commercial operations. At the request of USEPA, FCI re-calculated the hydrostatic pressure induced by injection into the actual injection interval thickness (700 feet) observed at the PTF location.

The volume of injection and extraction remain unchanged from the earlier calculations. Injection of the same volume of fluid over a longer interval effectively reduces the hydrostatic pressure induced by injection. Consequently, the hydrostatic pressure induced by injection at the PTF location is expected to be lower than the average hydrostatic pressure calculated for site-wide average conditions described in the application to transfer with amendments UIC Permit No. AZ396000001.

As described in Attachment 14A of the Temporary APP application, which is included as Exhibit A-1 of this Application, the Bedrock Oxide and the LBFU are in mutual hydraulic communication. There is no confining formation between the Bedrock Oxide and LBFU. However, both the Bedrock Oxide and the LBFU exist in confined to semi-confined conditions because both are below the MFGU. Language clarifying the nature of the hydraulic relationship between the Bedrock Oxide and LBFU has been added to Section N.3.1 of Attachment N.

**Comment 9**

*Section N.5, Direction of Movement of Injected Fluid: Please refer to the Comment above regarding the core holes drilled in 2011 at the PTF well field site and also described in this section.*

Response to Comment 9

Language has been added to Section N.5 to indicate that core holes CMP11-05 and CMP11-06 were drilled for the purpose of collecting metallurgical samples and were abandoned in 2011. Drill and abandonment records have been added to Exhibit C-1 and Table C-1 of Attachment C of the Application.

**Attachment O, Plans for Well Failures (Contingency Plan)**

**Comment 10**

*Section O.1, Introduction: The discussion of well design in the sixth paragraph on page 2 requires clarification with regard to the term "conductor" casing and the use of steel casing in two of the supplemental monitoring wells, M55 and M56. Those wells are depicted with 5-inch PVC casing in Figures 18-2 and 18-3 in Attachment M, which is inconsistent with the discussion in this paragraph. Steel "conductor" casing is depicted in the Attachment M figures of all types of wells, not just in the injection and recovery wells as implied in this paragraph. Please refer to the Comments under the Attachment L and M headings above for a discussion of this and other inconsistencies, and clarify the applicable discussion in Section O.1.*

Response to Comment 10

Section O.1 has been revised to remove the word "conductor" and clarify the roles of the steel casing to be used in construction of the injection and recovery wells. Section O.1 has also been revised to clarify that the observation wells and multi-level sampling wells will not have a steel casing grouted to bedrock, and will be constructed using fiberglass reinforced pipe (FRP).

Figures 18-2 and 18-3 have been revised to reflect Class III construction of supplemental monitoring wells M-55 and M-56 with steel casing. The revised figures are included in Exhibits M-1 and P-2.

The reference to conductor casing in Section O.1 has been revised to clarify that the injection and recovery wells will have steel casing installed and cemented from the ground surface to a point 40 feet below the top of bedrock. This casing can be considered to be a collar for the upper portion of the bore hole where the well is to be drilled in two stages, as is proposed for the injection and recovery wells. The observation, multi-level sampling, operational monitoring, and supplemental monitoring wells will not have steel casing installed to bedrock, unless the well extends to the top of bedrock or deeper.

Figures M-1, M-2, M-3, M-4, and M-5 each depict a steel surface casing installed to a minimum depth of 20 feet that will be used to support the ground around the well during drilling and well construction. Although varying in size, this feature is common to each of the proposed well designs.

## **Attachment P, Monitoring Program**

### ***Comment 11***

*Section P.3, Monitoring of Injection Pressure and Flow Rates: Please modify the discussion with regard to manifold pressure monitoring to clarify that injection pressures will also be monitored at the wellhead as presented in other sections of the application.*

### **Response to Comment 11**

Section P-3 has been revised to indicate that injection pressure will also be monitored at each injection well head as described in Exhibit K-2 of the Application.

### ***Comment 12***

*Section P.5.1, Groundwater Quality Monitoring: Figure 11-1 depicts M55 and M56 wells as supplemental monitoring wells, but Figures 18-2 and 18-3 labels them as POC wells (with new POC wells as M54). Please clarify for consistency. Also, please modify the text to clarify that establishing and monitoring Aquifer Quality Limits (AQLs) and Alert Levels (ALs) applies to the supplemental monitoring wells in addition to the POC wells. Also, please modify the text and Table P-4 to state that level 2 monitoring will occur semiannually, not biennially or annually. In addition, please label Table P-3 as Level 1 and Table P-4 as Level 2 parameters to be monitored.*

### **Response to Comment 12**

Figure 11-1 correctly depicts wells M-55 and M-56 as supplemental monitoring wells. Figures 18-1 and 18-2 have been revised to reflect that they are supplemental monitoring wells. The revised figures are included in Exhibits M-1 and P-2.

The text in Section P.5.1 has been revised to indicate that ALs and AQLs for supplemental monitoring wells are also included in Table P-3. The text in Section P.5.1 and Table P-4 has been revised to indicate that parameters listed in Table P-4 will be monitored semi-annually. The titles of Tables P-3 and P-4 have been revised to indicate the tables list the level 1 and level 2 parameters to be monitored respectively.

### ***Comment 13***

*Exhibit P-1, Alert Levels, Section 1.3.3, Existing ALs and AQLs: Please change annually to semiannually in the first sentence for consistency.*

### **Response to Comment 13**

The text in Section 1.3.3 of Exhibit P-1 has been revised to replace the word “annually” with the word “semi-annually”.

**Comment 14**

*Figures 18-2 and 18-3, POC Well Design: Please clarify or modify the figures and labels to be consistent with the typical supplemental monitoring well diagram in Figure M-5 dated May 2014 if applicable to the M55 and M56 wells. Refer to comments above regarding inconsistencies in the description of well construction design of supplemental monitoring wells.*

Response to Comment 14

Figures 18-2 and 18-3 have been updated to reflect the well design currently proposed for the Class III supplemental monitoring wells M-55 and M-56, and the figure titles have been revised to indicate that wells M-55 and M-56 are supplemental monitoring wells. The revised figures are included in Exhibits M-1 and P-2 of this Application.

**Comment 15**

*Exhibit P-2, Figure 11-1, Monitor Well Locations: Figure 11-1 includes a proposed supplemental monitor well MW-01, which is not included on other site plan and supplemental monitoring well diagrams in the application. Please clarify if this well is a proposed supplemental monitoring well, and if it is, provide the well construction details and the monitoring program information related to the proposed well. Please modify the attachments of the application, where appropriate, to include discussion of this proposed well.*

Response to Comment 15

Figure 11-1 of Exhibit P-2 has been revised to indicate that MW-01 is not classified as a supplemental monitoring well. Well MW-01 is an operational monitoring well established as a requirement of Section 2.5.8 of APP No. 106360. MW-01 will not have established ALs or AQLs, and will not be monitored for the level 1 and level 2 parameters. Rather, MW-01 will be sampled once prior to the pilot test and once after the test for the level 2 monitoring parameters listed in Table 4.1-5 of APP No. 106360. During the test, MW-01 will be sampled monthly for pH, TDS, and sulfate, with sample results reported to ADEQ quarterly. The purpose of MW-01 is to serve as an early warning of changing groundwater conditions that might indicate a release during PTF operations prior to arrival of the release at the Point of Compliance (POC). APP No. 106360, Section 2.5.8 reads:

“Monitoring well MW-01 shall be installed and approved by ADEQ in accordance with the Compliance Schedule, Section 3.0. Monitoring well MW-01 shall be located in the down gradient groundwater direction at or near the PTF well field boundary. The placement of MW-01 shall be sufficiently located to measure changes in chemical groundwater concentrations emanating from the injection zones within the effective time frames of the Temporary APP. MW-01 shall be a nested well screened separately across each proposed injection zone targeted for in-situ leaching, and potentially into the LBFU. MW-01 shall be analyzed one month prior to the pilot test start-up and one month after the rinsing phase for parameters listed in Table 4.1-5. MW-01 shall be monitored monthly for the duration of the pilot test for pH, sulfate, and total dissolved solids (TDS). The groundwater data collected for this well shall be summarized and submitted as part of the Quarterly Reporting Requirement listed in Section 2.7.4.4.”



The location of MW-01 shown on Figure 11-1 of Exhibit P-2 is an approximate location based on the requirements articulated in Section 2.5.8 of APP No. 106360. The final location, depth, and construction of MW-01 will be determined following the drilling and construction of at least three of the 24 PTF wells wherein static water level measurements can be made. Static water level measurements at the PTF wells will facilitate calculation of the precise down gradient direction, ambient groundwater flow velocity, and groundwater travel time to the proposed MW-01 location.

Based on conditions that may be observed during drilling the PTF wells, it is anticipated that the final location of MW-01 may move by as much as 100 feet in any direction. As stated in Section 2.5.8 of APP No. 106360, the final location of MW-01 must be approved by ADEQ prior to drilling and construction of the well. Based on the requirements stated in Section 2.5.8 of APP No. 106360, it is anticipated that MW-01 will be a Class III well.

The approximate location of MW-01 has been added to Figures A-9, 8-1, Temp APP RTC(E) 18-1, 12-1, B-1, and P-1 included in Attachments A, B, and P, and Exhibits B-1 and P-2 of the Application.

Attachment M has been modified to indicate that the construction methods and materials of operational monitoring well MW-01 will be the same as those used for the supplemental monitoring wells.

## **ATTACHMENT Q, PLUGGING AND ABANDONMENT PLAN**

### ***Comment 16***

*Please provide typical Plugging and Abandonment Plans (EPA Form 7520-14) and schematic diagrams of the proposed Class III injection wells, recovery wells, observation wells, and monitoring wells associated with PTF operations. In addition, please provide the same for the existing BHP test wells authorized by the UIC Area Permit issued to BHP Copper in 1997.*

### **Response to Comment 16**

Plugging and Abandonment Plans (USEPA Form 7520-14) and schematic diagrams have been prepared for each of the proposed Class III PTF wells including; injection wells, recovery wells, observation wells, multi-level sampling wells, supplemental monitoring wells, and operational monitoring well MW-01. In addition, Plugging and Abandonment Plans (USEPA Form 7520-14) have been prepared for each of the Class III wells constructed by BHP in accordance UIC Permit No. AZ396000001. The BHP Class III wells include injection, recovery, observation and chemical monitoring wells.

The Plugging and Abandonment Plans are included in Exhibit Q-4.

### ***Comment 17***

*Section Q.1.1, Applicability: Please provide a discussion of plans to plug and abandon the wells located in the BHP test well field authorized by the UIC Area Permit issued to BHP Copper in 1997 at the conclusion of PTF operations.*

### **Response to Comment 17**

Text has been added to Section Q.1.1 of Attachment Q to indicate that the Plugging and Abandonment Plan also applies to the future plugging and abandonment of Class III wells constructed by BHP under UIC Permit No. AZ396000001 should FCI choose not to proceed with commercial scale operations

following completion of PTF operations. Alternately, if FCI chooses to proceed with commercial operations at the conclusion of PTF operations, the BHP Class III wells may be incorporated into future phases of FCP operations, in which case plugging and abandonment will be deferred until the BHP wells are no longer required to support commercial operations.

**Comment 18**

*Also, please provide a discussion of plans to plug and abandon proposed wells, located within the AOR of the PTF, at the conclusion of PTF operations and/or post-closure monitoring, including recovery wells, observation wells, multi-level sampling wells, and supplemental monitoring wells.*

**Response to Comment 18**

Text has been added to Section Q.1.4 of Attachment Q describing post operational monitoring of the PTF well field as described in Section 2.9.2 of APP No. 106360, and requirements for ADEQ and USEPA authorization prior to plugging and abandonment of the PTF Class III wells.

At the conclusion of PTF operations, proposed Class III wells within the AOR will remain open for use in monitoring groundwater conditions until ADEQ and USEPA give approval to plug and abandon the wells. Section 2.9.2 of APP No. 106360 requires that the PTF wells remain open to facilitate sampling at one month, sixth months, and one year following the completion of formation rinsing. This Section of the APP also requires that written authorization be obtained from both ADEQ and USEPA prior to plugging and abandonment of the PTF Class III wells. Based on these requirements, the earliest time at which PTF wells may be plugged and abandoned is more than one year following the conclusion of formation rinsing. ADEQ and USEPA may choose to require additional monitoring after the one year samples have been collected. Post-closure monitoring at the POC wells and supplemental monitoring wells will continue for a period of at least five years following the completion of formation rinsing. In any event, PTF Class III wells will not be plugged and abandoned until written authorization to do so has been received from both ADEQ and USEPA.

**Comment 19**

*Please clarify that the discussion of plugging and abandonment notifications, approvals, procedures, documentation, and reporting in attachment Q and exhibit Q-2, Closure and Post-Closure Plan, apply to all existing BHP test wells authorized in the UIC Area Permit issued to BHP Copper in 1997.*

**Response to Comment 19**

Text has been added to Section Q.2 of Attachment Q, *Plugging and Abandonment Plan*, to indicate that the notifications, approvals, procedures, documentation, and reporting requirements identified in Attachment Q and Exhibit Q-2 apply to all Class III wells constructed within the PTF AOR, as well as Class III wells constructed by BHP within the AOR established by UIC Permit No. AZ396000001.

**Comment 20**

*Exhibit Q-2. Closure and Post-Closure Plans.*

- a. Section 1.4, Closure Objective: For clarification, please add reference to ensure compliance with the requirements of the UIC Permit. Also, please add the following words after POC in the first sentence: and supplemental monitoring wells.*

- b. Section 2.1.1: Groundwater Restoration Process: Please add to the end of item No. 4: and Table P-4 of the attachments in the UIC permit.*
- c. Section 2.4, Closure Monitoring: Please add reference to the supplemental monitoring wells wherever reference is made to POC wells and add reference to the UIC Permit wherever reference is made to the Temporary APP in this section. Also, please add reference to Tables P-3 and P-4 of the UIC permit wherever reference is made to Tables 4.1.6 and 4.1.7 of the Temporary APP.*
- d. Section 2.5., Post-Closure Monitoring: Please add the following words after "POC" in this section: and supplemental monitoring wells. Also, please add reference to the UIC Permit wherever reference is made to the Temporary APP in the last paragraph in this section.*
- e. Section 3, Closure/Post-Closure Schedules: Please add reference to the U.S. EPA wherever reference is made to ADEQ in this section. Please state that a copy of the site investigation and closure plan submitted to ADEQ shall be provided to the U.S. EPA for review and approval before closure operations commence. Also, please add to the end of Subsections 3.1 and 3.2 that a copy of the closure notification and report, with documentation, will be submitted to the U.S. EPA within 30 days following completion of the closure plan.*
- f. Section 4, Closure/Post-Closure Cost Estimates: Please add the following words after "POC wells" in the third sentence: and supplemental monitoring wells. Also, please add the following after "APP" in the same sentence: and the UIC Permit. Please clarify the statement that "the M54-0 and M54-LBF wells are not included as POC wells" since Attachment P and other references in the UIC permit application characterizes those wells as POC wells.*

#### Response to Comment 20

Changes have been made to the text of Exhibit Q-2 as requested with the exception of item 20.a listed above. The text changes requested for items 20.b through 20.f collectively have the effect of matching the monitoring schedule for the supplemental monitoring wells to the POC monitoring schedule, and to synchronize reporting to ADEQ and USEPA. Each of these changes has been made to Exhibit Q-2 as requested.

The text addition requested in item 20.a refers to a sentence which describes the statutory requirements associated with the POC as established for the APP program. By making the requested text addition to this sentence, the sentence will effectively be changed to establish new POC locations within the pollutant management area (PMA) established by APP No. 106360. The APP program requires that the POC be established at the edge of the PMA or beyond depending on site-specific conditions, but not within the PMA. The additional text requested in item 20.a has the effect of establishing the supplemental monitoring wells as POCs at locations that are within the PMA established by APP No. 106360. For this reason the text addition requested in item 20.a was not made to Section 1.4 of Exhibit Q-2.

#### **ATTACHMENT R, NECESSARY RESOURCE**

##### ***Comment 21***

*Section R.3.2, Post-Closure: Please clarify or modify the statements regarding one quarterly Level 2 sampling event to be conducted each year. Attachment P of the UIC permit application will specify semi-annual sampling for Level 2 events. Also, please add reference to the U.S. EPA wherever reference is made to ADEQ in this section.*

Response to Comment 21

The requests text changes have been made to Section R.3.2 of Attachment R.

**Comment 22**

*Exhibit R-1, Closure and Post-Closure Cost Estimates: Please replace Table 5-2 in the permit application (revised 9/12/2012) with the updated version attached to the RFI response dated May 13, 2014.*

Response to Comment 22

An updated version of the Table 5-2 (dated July 25, 2014) has been inserted in the permit application in place of the previous version (revised September 12, 2012). The July 25, 2014 version of Table 5-2 was updated from the April 3, 2014 version of Table 5-2 by adding a new Section (Section 8) that includes abandonment costs for operational monitoring well MW-01. All other costs listed in Table 5-2 remain unchanged from the April 3, 2014 version of the Table. The July 25, 2014 version of Table 5-2 is included with the Application as Exhibit R-1 of Attachment R.

**Comment 23**

*Abandonment cost estimates for the wells located within the BHP test well field authorized by UIC Area Permit No. AZ396000001 issued to BHP in 1997, are not provided in Table 5-2. Those wells must be abandoned at the conclusion of PTF operations. Please provide cost estimates for abandonment of those wells.*

Response to Comment 23

Abandonment costs for the Class III wells constructed by BHP within the AOR defined by UIC Permit No. AZ396000001 are included in Exhibit R-1 of Attachment R as Table 5-2a. Well closure costs provided in Table 5-2a reflect costs to plug and abandon the BHP Class III wells in accordance with the plugging and abandonment plan included in Attachment Q of this Application. Costs in Table 5-2a are provided in 2014 dollars.

**ATTACHMENT S, AQUIFER EXEMPTION**

**Comment 24**

*Section S.1, Introduction: Please edit the discussion of the lateral extent of the aquifer exemption to be consistent with the original exempted area authorized by UIC Permit No. AZ396000001 in 1997. The lateral extent of the approved exempted area coincides with the AOR boundary at a distance of 500 feet from the larger property area perimeter as described in Exhibit S-1 rather than 500 feet from the PTF well field perimeter.*

Response to Comment 24

Text has been added to Section S.1 of Attachment S to clarify that the lateral extent of the aquifer exemption authorized by UIC Permit No. AZ396000001 is equal to the 212-acre mineralized area plus a 500-foot circumscribing area.

***Comment 25***

*Section S.3, Required Criteria for Exempted Aquifers: Please state that the Pre-feasibility Study Report is provided on a CD in Exhibit S-2.*

**Response to Comment 25**

The requested text has been added to Section S.3 of Attachment S.

***Comment 26***

*Section S.4, Proposed Aquifer Exemption: Please amend this section to indicate that the horizontal limits of the aquifer exemption area coincide with the original limits of the AOR described in Attachment A and B of the original UIC Permit issued to BHP in 1997. Also, please correct the reference to Figures D-2 and D-3 to Figures D-3 and D-4, respectively.*

**Response to Comment 26**

The requested text has been added to Section S.4 of Attachment S.

## **APPENDIX 1**

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**Complete Updated UIC Permit Application  
(Submitted Separately)**